



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
JOHN F. KENNEDY FEDERAL BUILDING
ONE CONGRESS STREET
BOSTON, MASSACHUSETTS 02203-2211

February 8, 1994

Ms. Marilyn Powers
U.S. Department of the Navy
Northern Division - NAVFAC
10 Industrial Highway
Code 1823 - Mail Stop 82
Lester, PA 19113-2090

Re: Allen Harbor Phase II Draft Remedial Investigation Report,
Naval Construction Battalion Center, RI

Dear Ms. Powers:

Pursuant to § 7.6 of the NCBC Federal Facility Agreement (FFA),
please find attached the Environmental Protection Agency's (EPA)
comments on the above referenced document.

If you have any questions with regard to this letter, please do
not hesitate to contact me at (617) 573-5783 or Christine
Williams at (617) 573-5736.

Sincerely,

A handwritten signature in black ink that reads "Michael J. Daly".

Michael J. Daly
Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Judith Graham, RIDEM
Lou Fayan, NCBC
Scot Gnewuch, ADL
Tim Prior, US F&W
Christine Williams, EPA



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EPA COMMENTS: ALLEN HARBOR LANDFILL PHASE II RI REPORT

GENERAL COMMENTS

1. Maintain consistency with the Phase II RI Report

The report is generally well organized and consistent with the Phase II RI. However, to maintain the consistency, any comment addressed or changes made to the Phase II RI should also be included in this report, if pertinent. Specific changes required in the Phase II RI that should also be incorporated into this report include:

- The Fate and Transport Discussion

As in the Phase II report, the Fate and Transport Section is insufficient. The fate and transport of each compound has only been generalized. In order to provide the reader with better insight into how these compounds will behave at the sites, the following should be provided for each site:

- A table of velocities within ground water of all COCs using a K_{oc} for each compound, and a soil organic carbon content assumed appropriate for the site.
- A table of volatilization rates of COCs detected in soils (see Air/ Superfund National Technical Guidance Study Series, Volume II - Estimation of Baseline Air Emissions at Superfund Sites, EPA-450/1-89-002), and the amount of time a compound will remain in the soil until it would completely volatilize assuming no infiltration occurs.
- A triangular diagram indicating which media each of the compounds are more likely to remain within (see attachment A of EPA's Phase II RI comment letter). The diagram could be quantitative by using the fugacity concept of Mackay (Mackay, Finding fugacity feasible, Environ. Sci. Technol. vol. 13, no. 10, 1979).
- Degradation rates (if available) and a diagram of the degradation products expected when the COCs degrade.

The uncertainties associated with the assumptions used to provide the above information should also be provided.

- Quantification of Human Health Risks Associated with Exposure to Volatile Emissions

The potential for workers to be exposed to volatile emissions from soils during construction is likely. Therefore, the risks associated with this scenario should be quantified for each site. Expected air concentrations in a trench (since the possibility exists that workers could be in a trench) should be determined by either utilizing soil gas information or calculating volatile emissions. Once the air concentrations are determined the risks resulting from exposure to them should be quantified.

2. Quantification of contaminant leaching rates from the landfill to Allen Harbor.

Since little analytical data are available regarding surface water concentrations in Allen Harbor, the mass of each COC potentially leaching from the landfill into the harbor should be quantified using a mass balance approach. This quantification will require calculations based on concentrations detected in ground water and physical/chemical properties of the compounds combined with ground water flow rates. The calculations should include the mass flux currently impacting the harbor, and the maximum mass expected to leach to the harbor.

3. Inclusion of site-specific issues in the Human Health Risk Assessment (HHRA) Executive Summary

The Executive Summary of the HHRA should more closely reflect what was done for Site-09. As written, it is basically the same as the Executive Summary for the Draft Phase II RI Report, with the exception of the risk results reported.

4. Quantification of HHRA with Exposure to Surface Water, Sediment, and Ingestion of Shellfish in Allen Harbor

Risks should be quantified for exposures to surface water, sediment and human consumption of shellfish. It is reasonable to assume that people could swim from boats moored in the harbor. Additionally, Allen Harbor was once a productive area for harvesting shellfish until the harbor was closed to due to concerns of contamination coming from the landfill. It is extremely important that risks resulting from ingestion of shellfish be quantified in the risk assessment.

Exposures to shellfish in the harbor through human

5. Inclusion of site-specific issues in the HHRA's Uncertainty Section

The Uncertainty Section of the HHRA requires the inclusion of site-specific rather than generic issues. The following should be included in this section:

- Address any issues regarding the environmental sampling and analyses for this site which would increase the uncertainty of the environmental measurements.
- In Section 4.2 (the Toxicity Uncertainty Section) address which chemicals (especially those which contribute significantly to risk) contain large uncertainties in their toxicity values.
- Address which chemicals were excluded from risk quantification due to lack of EPA-derived toxicity values, and also identify those which may have published data showing some toxicity and indicate the range of toxicity that may be expected.

In addition, it is unclear why uncertainties are addressed in two different sections of the report. One assessment begins on page 3-25 (Site-Specific Uncertainties) and the other in Section 4. The uncertainties from each section should be combined into one comprehensive uncertainty assessment section.

6. The Background Surface Soil Investigation

This entire section should be rewritten incorporating the comments provided by EPA in its letter to the Navy on the Draft Phase II RI.

SPECIFIC COMMENTS

7. Page ES-5: Last Paragraph, First Sentence

In this sentence it is stated that "only the stratified sands or gravels are permeable enough to yield large quantities of water for development." What value defines the difference between large and small. Although the amount of water yielded by the bedrock and other overburden deposits may be small relative to the sands and gravels, they may yield enough water to support a residence. It is recommended that this sentence be rewritten to read, "The stratified sands and gravels yield the largest quantities of water in the NCBC Davisville area."

8. Page ES-12 Fourth Sentence

Typo: "Construction water materials"

9. Page ES-12 Last Incomplete Sentence

The sentence beginning "Low to moderate..." should be reworded. The terms low and moderate are relative.

The sentence should read "Upward gradients of 0.0516 ft/ft, and downward gradients of 0.0489 ft/ft were measured at the site."

10. Page ES-17 First Bullet, First Sentence

The term "heavily" is a relative term. Delete first two sentences and replace with "Samples collected from site surface soils indicated the presence of compounds detected above RIDEM and risk based criteria. The most commonly detected compounds in surface soils were PAHs."

11. Page ES-17 Second Bullet, First Sentence

Replace this sentence with "Elevated concentrations of compounds were also detected in samples collected from subsurface soils."

12. Page ES-17 Third Bullet, Third Sentence

The statement "It is reported..." should be referenced as to where this information was obtained.

13. Page ES-18 Last Sentence

This sentence should be removed. The findings of the RI and RA should be assessed in this document, not the Feasibility Study (FS). The FS uses the findings of the RI and RA to evaluate potential remedial alternatives for the site.

14. Page 1-10 Last Paragraph, First Sentence

Please remove the term "and very low secondary porosities (joints, fractures, and openings along bedding planes)."

15. Page 1-10 Last Paragraph, Second Sentence

Please replace this sentence with the following "Secondary openings (joints, fractures, and openings along bedding planes) will yield the majority of water from the bedrock formation."

16. Page 1-12 Sections 1.3.1.1 - NCBC Geology and 1.3.1.2 - NCBC Hydrogeology

It is not clear why the geology and hydrogeology of the entire NCBC site are reviewed in such detail in this report. A few short paragraphs would suffice. The purpose of this report is to focus on Allen Harbor Landfill. The details of the geology and hydrogeology for the entire NCBC site are presented in the Phase II RI report.

17. Figures 1-6 and 1-7

These figures should locate the relative positions of Allen Harbor Landfill and the NCBC base. Also a reference to Figure No. 1 is made in the lower right corner of each map, is this related to Figure 1-1 in this report or the GZA report the figures were taken from?

18. Figures 2-4 and 2-5

Reference points should be provided on these maps such as ground water well or soil boring locations. It is difficult to determine the location of anomalies within the landfill relative to locations of known contamination.

19. Page 2-13 Section 2.4.5.2 - First Paragraph

A reference to the document TRC, 1991 is presented, but no list of references is provided in this report.

20. Page 2-17 Third Complete Paragraph

Is it true that a shale is interbedded with a gneiss?
Is the shale possibly a slate, phyllite, or schist?

21. Figures 2-10 through 2-13

Since the ground water beneath the landfill is influenced by the tide, the time range that the data were collected within should also be included in these figures.

22. Page 2-25 Last Paragraph, Second to Last Sentence

Explain the rationale for selecting 0.1 percent organic carbon content as opposed to some other value. If this is cross referenced please provide a reference.

23. Table 2-12

This table should be taken out and the information included into an Appendix. It is too long for inclusion in the report.

24. Figures 2-14 through 2-19

A label should be provided adjacent to the well number indicating how far from each well is located from Allen Harbor.

25. Page 2-41 Section 2.5.1.5 - First Paragraph

The method of determining equivalency factors should be referenced and a brief description provided as to how they are calculated.

26. Page 2-50 First Paragraph

According to the approved Phase II RI Work plan, four subsurface soil samples "which visually appear to be the most contaminated or of concern will also be submitted for TCLP and dioxin/furan analyses". Why were these samples not analyzed for dioxins/furans?

27. Page 2-51 First Paragraph After Bullets, Fourth Sentence

Vapor pressure is not defined as a relative measure of the volatility, rather it can be used as an indicator of the volatility of the chemical. Vapor pressure is defined as the pressure exerted when a solid or liquid is in equilibrium with its own vapor. Please change.

28. Page 2-52 Volatile Organic Compounds, Second Sentence

In general, the nature of volatile organic compounds is to volatilize, however, the principal mechanism for the natural removal of VOCs is not always through volatilization. Many factors can influence which process dominates the natural removal of a compound from a site. This sentence should either be removed, or greater detail provided regarding the influence of various parameters on volatilization.

Human Health Risk Assessment

29. Page 3-19 Dibenzofuran is not a PAH.

30. Page 3-27

A summary table of site-specific uncertainties, including an estimation of whether these uncertainties would bias the risks up or down, would be helpful in this section.

31. Page 3-30

Clarify that the statement that use of the toxic equivalency factor approach reduces the risk by a factor of two only applies to cancer risks resulting from the incidental ingestion of soil.

Explain why it is not possible to compare detected concentrations of manganese to an upgradient well, and why replacing that comparison with a comparison to antimony is suitable.